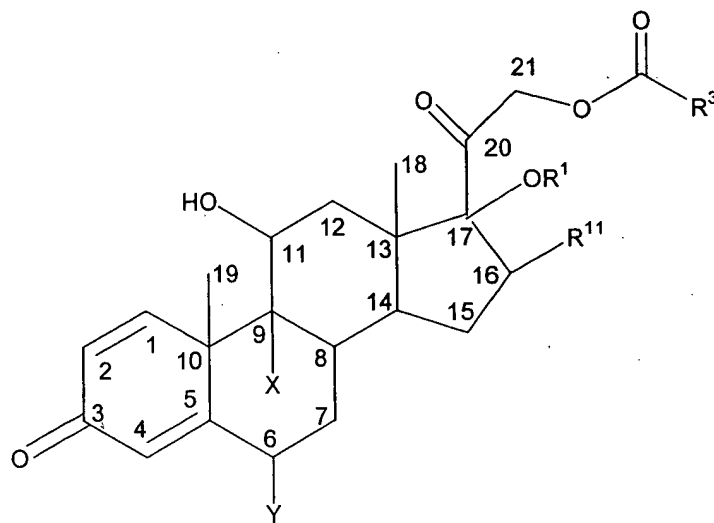


CLAIMS

1. A composition comprising a β_2 adrenergic agonist in combination with a compound of Formula I:



(I)

wherein

R¹ and R², independently for each occurrence, represent a hydrogen, lower alkyl or lower acyl, or taken together R¹ and R² form a substituted or unsubstituted ketal;

R³ is -OR⁴ or -NR⁵R⁶;

R⁴ is chosen from C₇ to C₂₄ hydrocarbon, -(C₇ to C₂₄ hydrocarbon)-COOH and -(C₇ to C₂₄ hydrocarbon)-NR⁹R¹⁰;

R⁵ is hydrogen or C₇ to C₂₄ hydrocarbon;

R⁶ is chosen from C₇ to C₂₄ hydrocarbon and -(C₇ to C₂₄ hydrocarbon)-COOH;

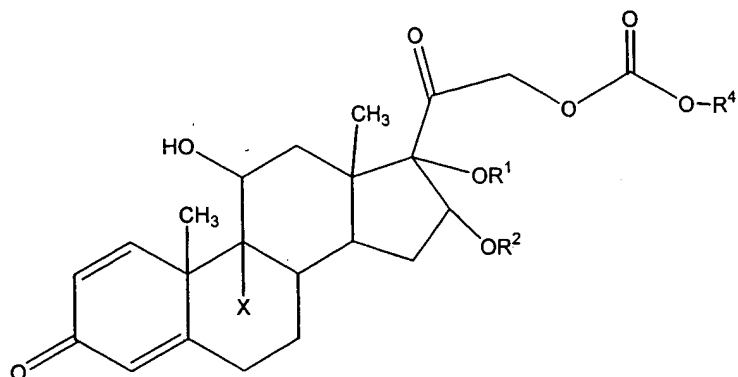
R⁹ is hydrogen or C₁ to C₁₇ hydrocarbon;

R¹⁰ is hydrogen or C₁ to C₁₇ hydrocarbon;

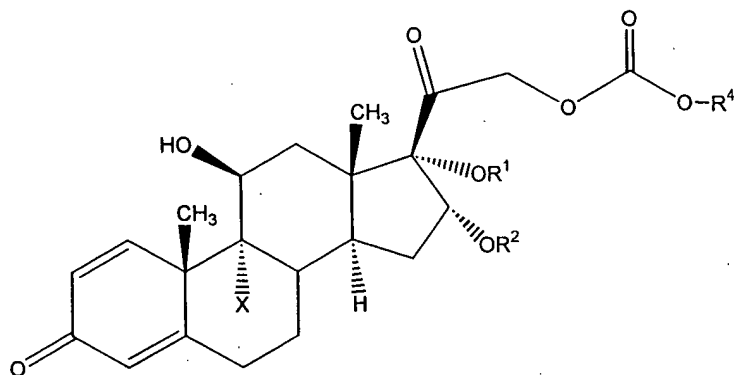
R¹¹ is methyl or -OR²; and

X and Y are independently hydrogen or halogen.

2. A composition according to claim 1 wherein said compound has formula:

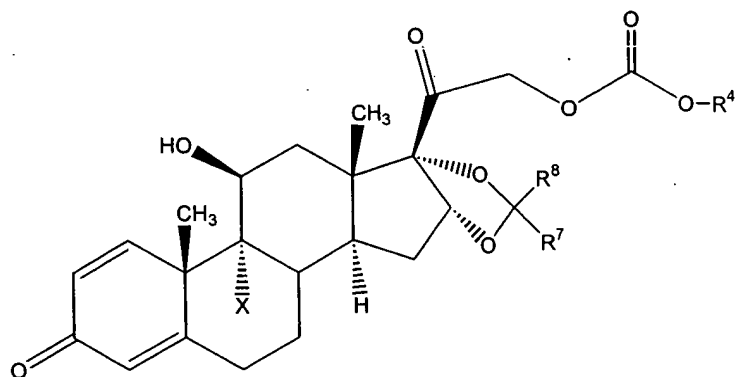


3. A composition according to claim 2 wherein said compound has formula:



wherein X is hydrogen or fluorine.

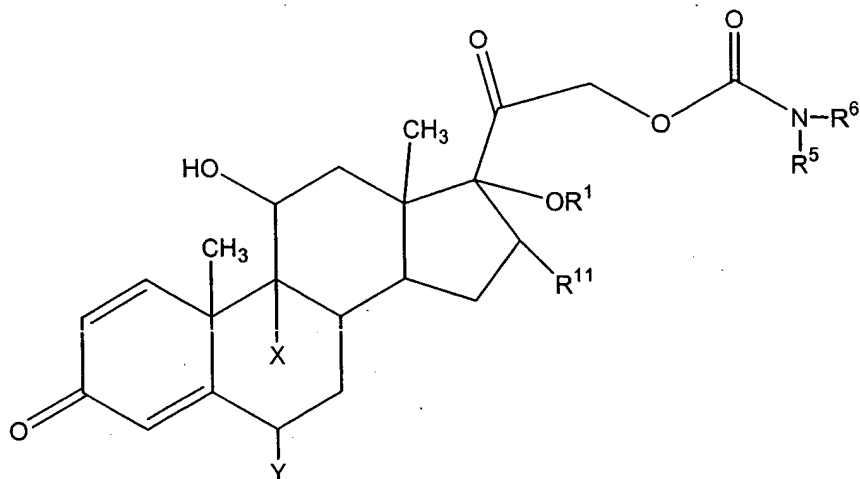
4. A composition according to claim 3 wherein said compound has formula:



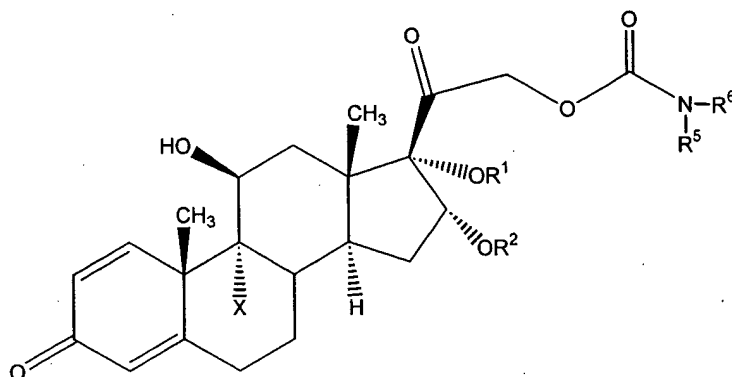
wherein R⁷ is hydrogen or lower alkyl; and R⁸ is lower alkyl.

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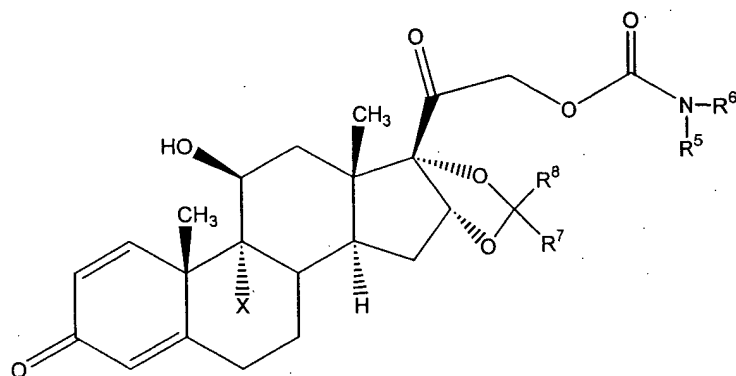
7. A composition according to claim 1 wherein said compound has formula:



8. A composition according to claim 7 wherein said compound has formula:



9. A composition according to claim 8 wherein said compound has formula:

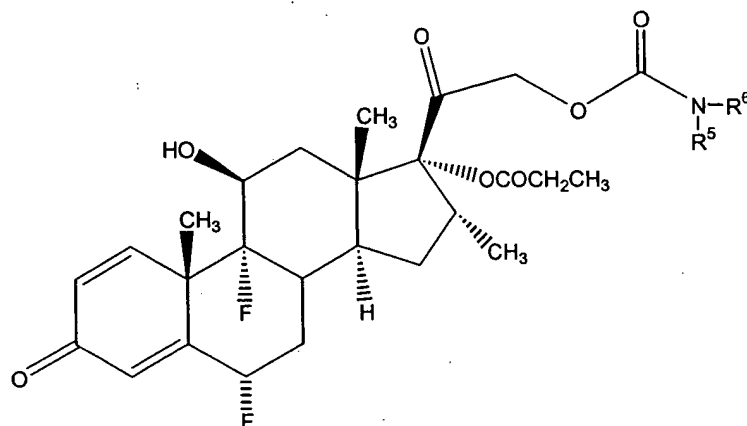


wherein

R⁷ is hydrogen or lower alkyl; and

R⁸ is lower alkyl.

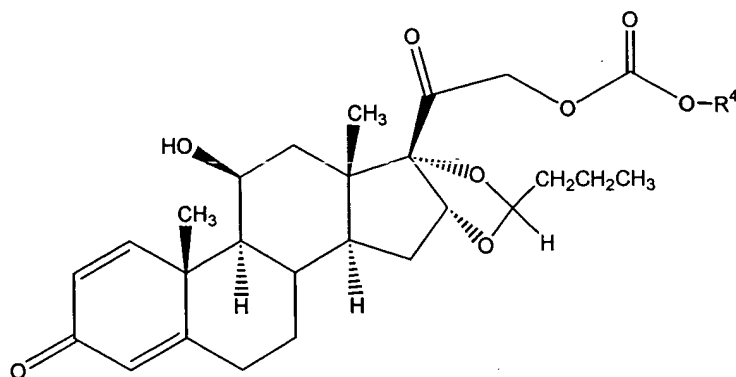
10. A composition according to claim 7 wherein said compound has formula:



11. A composition according to claim 7 wherein R⁵ in said compound of Formula I is hydrogen or lower alkyl.

12. A composition according to claim 7 wherein R⁶ in said compound of Formula I is C₇ to C₂₄ alkyl.

13. A composition according to claim 3 wherein said compound has formula:

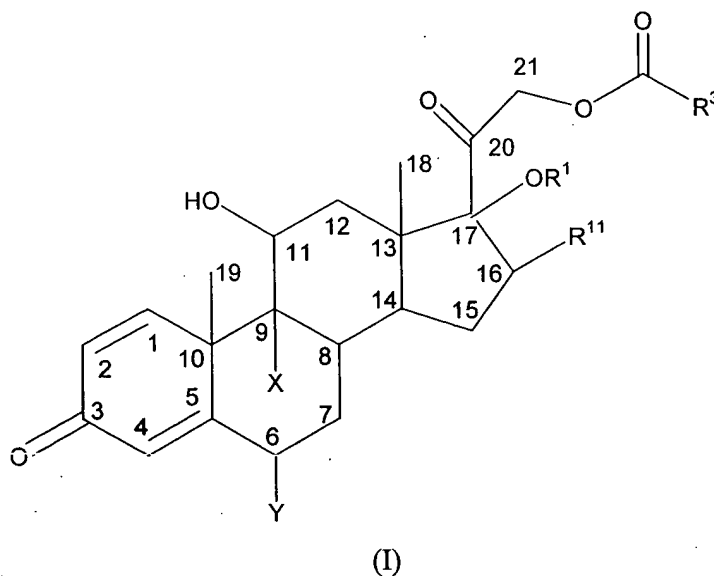


wherein R⁴ is n-dodecyl.

14. A composition according to claim 1 wherein said β_2 adrenergic agonist is selected from the group consisting of terbutaline, albuterol, fenoterol, hexoprenaline, rimiterol, isoetharine, orciprenaline, metaproterenol, reproterol, clenbuterol, procaterol, carbuterol, tulobuterol, pirbuterol, bitolterol, formoterol, bambuterol, salmeterol, the acid salts thereof, the analogs thereof, and mixtures thereof.

15. A composition according to claim 1 wherein said β_2 adrenergic agonist is selected from the group consisting of albuterol, formoterol, salmeterol, the acid salts thereof, the analogs thereof, and mixtures thereof.

16. A method for treating bronchospasm comprising administering a β_2 adrenergic agonist and a compound of Formula I:



wherein

R^1 and R^2 , independently for each occurrence, represent a hydrogen, lower alkyl or lower acyl, or taken together R^1 and R^2 form a substituted or unsubstituted ketal;

R^3 is $-OR^4$ or $-NR^5R^6$;

R^4 is chosen from C_7 to C_{24} hydrocarbon, $-(C_7 \text{ to } C_{24} \text{ hydrocarbon})-COOH$ and -

(C₇ to C₂₄ hydrocarbon)-NR⁹R¹⁰;

R⁵ is hydrogen or C₇ to C₂₄ hydrocarbon;

R⁶ is chosen from C₇ to C₂₄ hydrocarbon and -(C₇ to C₂₄ hydrocarbon)-COOH;

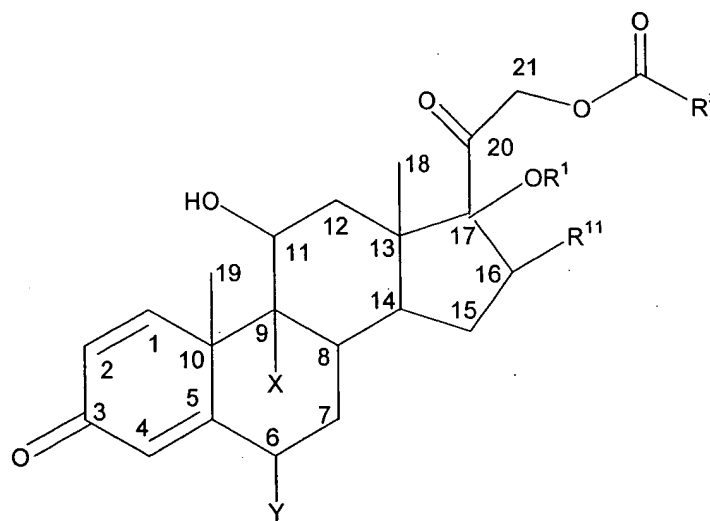
R⁹ is hydrogen or C₁ to C₁₇ hydrocarbon;

R¹⁰ is hydrogen or C₁ to C₁₇ hydrocarbon;

R¹¹ is methyl or -OR²; and

X and Y are independently hydrogen or halogen.

17. A method for inducing bronchodilation comprising administering a β_2 adrenergic agonist and a compound of Formula I:



(I)

wherein

R¹ and R², independently for each occurrence, represent a hydrogen, lower alkyl or lower acyl, or taken together R¹ and R² form a substituted or unsubstituted ketal;

R³ is -OR⁴ or -NR⁵R⁶;

R⁴ is chosen from C₇ to C₂₄ hydrocarbon, -(C₇ to C₂₄ hydrocarbon)-COOH and -(C₇ to C₂₄ hydrocarbon)-NR⁹R¹⁰;

R⁵ is hydrogen or C₇ to C₂₄ hydrocarbon;

R^6 is chosen from C_7 to C_{24} hydrocarbon and $-(C_7 \text{ to } C_{24} \text{ hydrocarbon})\text{-COOH}$;

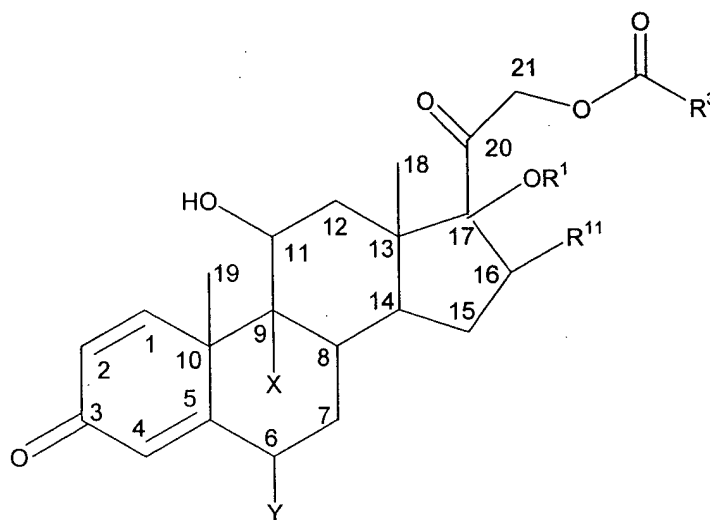
R^9 is hydrogen or C_1 to C_{17} hydrocarbon;

R^{10} is hydrogen or C_1 to C_{17} hydrocarbon;

R^{11} is methyl or $-\text{OR}^2$; and

X and Y are independently hydrogen or halogen.

18. A method for treating inflammatory conditions comprising administering a β_2 adrenergic agonist and a compound of Formula I:



(I)

wherein

R^1 and R^2 , independently for each occurrence, represent a hydrogen, lower alkyl or lower acyl, or taken together R^1 and R^2 form a substituted or unsubstituted ketal;

R^3 is $-\text{OR}^4$ or $-\text{NR}^5\text{R}^6$;

R^4 is chosen from C_7 to C_{24} hydrocarbon, $-(C_7 \text{ to } C_{24} \text{ hydrocarbon})\text{-COOH}$ and $-(C_7 \text{ to } C_{24} \text{ hydrocarbon})\text{-NR}^9\text{R}^{10}$;

R^5 is hydrogen or C_7 to C_{24} hydrocarbon;

R^6 is chosen from C_7 to C_{24} hydrocarbon and $-(C_7 \text{ to } C_{24} \text{ hydrocarbon})\text{-COOH}$;

R^9 is hydrogen or C_1 to C_{17} hydrocarbon;

R^{10} is hydrogen or C_1 to C_{17} hydrocarbon;

R^{11} is methyl or $-OR^2$; and

X and Y are independently hydrogen or halogen.

19. A method according to claim 18 wherein said inflammatory condition is chronic obstructive pulmonary disease.

20. A method according to claim 18 wherein said inflammatory condition is asthma.

21. A method according to claim 18 wherein said inflammatory condition is rhinitis.

22. A method according to claim 18 wherein said composition is administered by inhalation.

23. A method according to claim 18 wherein said β_2 adrenergic agonist and said compound of Formula I are administered within four hours of each other.

24. A method according to claim 18 wherein said β_2 adrenergic agonist and said compound of Formula I are administered simultaneously.

25. A pharmaceutical formulation for inhalation comprising the composition of claim 1 and a pharmaceutically acceptable fluid for suspension or solution.